



NUCLEAR WASTE MANAGEMENT ORGANIZATION SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

March 2, 2015

Mayor Bruce Fidler
Town of Creighton
300 1st Street East
P.O. Box 100
Creighton, SK S0P 0A0

Re: Adaptive Phased Management Site Selection Process –
Initial Findings from Step 3, Phase 2 Preliminary Assessments

Dear Mayor Fidler,

I am writing to bring to your attention findings from initial geoscience evaluations conducted in your area as part of Step 3, Phase 2 assessments. These findings have implications for your community's involvement in the site selection process for the Adaptive Phased Management (APM) project.

The Town of Creighton requested the opportunity to learn more about the APM Project through the process of Step 3, Phase 2 Preliminary Assessments in your area. As you know, the purpose of Preliminary Assessments is to assess potential to meet the robust safety and community well-being requirements for siting Canada's repository for used nuclear fuel and Centre of Expertise. This stage of assessment guides the NWMO in identifying areas that show strong potential to meet siting requirements and to be the focus of progressively more detailed study. Over time, the site selection process will arrive at a single, preferred safe site in an area with an informed and willing host.

The process for identifying an informed and willing host is designed to ensure, above all, that the site selected is safe and secure for people and the environment, now and in the future. In this regard, geoscientific evaluations are an important foundation for Phase 2 studies.

In 2014, the NWMO completed a series of geoscientific field studies in your area, and we have recently completed our analysis of the data collected. The objectives of these initial field studies were to advance understanding of the geology of the Creighton area, and assess whether it is possible to identify candidate areas to be the focus of further field studies. The Phase 2 geoscientific preliminary assessment included the following key activities:

- Acquisition and processing of high-resolution airborne geophysical data (magnetic and gravity) data;
- Detailed interpretation of the high-resolution gravity and magnetic data to better understand the bedrock geology such as geological contacts, depth and extent of rock units, lithological and structural heterogeneity;

- Detailed interpretation of surficial and magnetic lineaments using the newly acquired high-resolution remote sensing and magnetic surveys to identify possible structural features such as fractures and shear zones; and
- Observation of general geological features to ground-truth geologic characteristics such as lithology, structures, bedrock exposure and surface constraints.

The acquisition and interpretation of the new Phase 2 data greatly improved understanding of the geology of the areas studied, and allowed for a more detailed assessment of the geoscientific uncertainties and complexities identified in the Phase 1 desktop preliminary assessments. The findings of these initial Phase 2 studies for the Creighton area are documented in four reports: Findings from Initial Field Studies report; Acquisition, Processing and Interpretation of High-Resolution Airborne Geophysical Data report; Lineament Interpretation report; and Observation of General Geological Features report.

As described in the enclosed reports, the interpretation of the new Phase 2 data confirmed geological complexities that reduce the likelihood of finding a suitable repository site in the Creighton area. The studies show that there is limited potential to meet safety requirements of the project in the Creighton area.

More specifically, the geoscientific assessment identified only one candidate area that could be considered for detailed mapping. The area is located in the western portion of the Annabel Lake pluton, which is a fairly narrow elongated granitoid intrusion. However, this potential area is only marginally sufficient in size for hosting a deep geological repository. In addition, the area contains numerous interpreted subsurface fractures that could have an impact on the long-term performance of a deep geological repository. Avoiding subsurface fractures would generally require a larger repository footprint at depth. However, there is limited opportunity for expanding the repository footprint in the Creighton area as the size of the potential host geological formation, the Annabel Lake pluton, is fairly small and bounded by major shear zones and unsuitable rocks.

In light of these findings, the NWMO will now conclude studies in your community. Safety, security and protection of people and the environment are central to the siting process, and it is important that we are guided by these findings concerning geoscientific suitability.

It is out of respect and fairness to you, your community members and communities in the surrounding area, that we provide you with this feedback arising from the geoscientific studies recently completed. We have heard from communities through the course of our work that, where findings suggest an area has low potential to meet project requirements, we should have timely discussions to support the orderly conclusion of studies.

Please let me take this opportunity to acknowledge the leadership you and the Creighton community have demonstrated in implementing Canada's plan for the long-term management of used nuclear fuel. As a member of the group of communities that together advanced the process

for this important national infrastructure project, we look forward to regularly updating you about progress.

The NWMO will work closely with you to plan your community's transition out of the site selection process. We thank you and the many community members in Creighton and the surrounding area who worked closely with the NWMO team to advance Canada's plan for the safe, long-term management of used nuclear fuel.

Sincerely,



Kathryn Shaver,
Vice President, APM Public Engagement and Site Selection

Attachments:

- Phase 2 Geoscientific Preliminary Assessment, Findings from Initial Field Studies, Town of Creighton, Saskatchewan (Golder 2015).
- Phase 2 Geoscientific Preliminary Assessment, Lineament Interpretation, Town of Creighton, Saskatchewan (SRK 2015).
- Phase 2 Geoscientific Preliminary Assessment, Observation of General Geological Features, Town of Creighton, Saskatchewan (SRK and Golder 2015).
- Phase 2 Geoscientific Preliminary Assessment, Acquisition, Processing and Interpretation of High-Resolution Airborne Geophysical Data, Town of Creighton, Saskatchewan (SGL 2015)